

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. Canceled.
2. (currently amended): ~~A An improvement for a~~ method for rapidly acquiring a spreading code, used in a code division multiple access (CDMA) system, the ~~improvement~~ method comprising the steps of:
  - (a) generating a first long code and a second long code, with each long code having a length N chips, with the first long code different from the second long code;
  - (b) transmitting, over a communications channel using radio waves, the first long code and the second long code, at a first phase angle and at a second phase angle, respectively, on a carrier signal, with the first phase angle different from the second phase angle; and
  - (c) acquiring, from the communications channel, using two phase-acquisition circuits in parallel, the first long code and the second long code from the first phase angle and the second phase angle, respectively, by searching, in parallel, N/2 chips of the first long code and the second long code.
3. (currently amended): ~~The improvement as set forth in~~ method of claim 2, with the step of transmitting including wherein step (b) further includes transmitting the first long code and the second long code, at an in-phase (I) angle and at a quadrature-phase (Q) angle, respectively, on the carrier signal, with the I angle ninety degrees out of phase with the Q angle.

4. (currently amended): ~~The improvement as set forth in~~ method of claim 3, with the step of acquiring including wherein step (c) further includes acquiring, from the communications channel, using an I-phase acquisition circuit and a Q-phase acquisition circuit in parallel, the first long code and the second long code from the I angle and the Q angle respectively, of the carrier signal by searching, in parallel, N/2 chips of the first long code and the second long code.

5. (currently amended): ~~The improvement as set forth in~~ method of claim 2, with the step of generating including wherein step (a) further includes generating the first long code and the second long code from a multiplicity of short codes, with each short code different from other short codes in the multiplicity of short codes, and each short code in the multiplicity of short codes having a length less than N chips, with a first short code thereby embedded in the first long code and a second short code embedded in the second long code.

6. (currently amended): ~~The improvement as set forth in~~ method of claim 5, with the step of acquiring including wherein step (c) further includes acquiring from the communications channel, using the two phase-acquisition circuits in parallel, the first short code embedded in the first long code and the second short code embedded in the second long code, from the first phase angle and the second phase angle, respectively, by searching, in parallel, N/2 chips of the first short code and the second short code.

7. (currently amended): ~~A An-improvement-for-a~~ method for rapidly acquiring a spreading code used in a code division multiple access (CDMA) system, the improvement method comprising the steps of:

(a) generating a plurality of P long codes, where P is the number of long codes in the plurality of long codes, with each long code having a length N chips, and each long code being different from other long codes in the plurality of long codes;

(b) transmitting, over a communications channel using radio waves, the plurality of long codes at a plurality of phase angles, respectively, on a carrier signal, with each phase angle in the plurality of phase angles being different from other phase angles; and

(c) acquiring, from the communications channel, ~~using phase acquisition means,~~ the plurality of long codes, respectively, by searching, in parallel, N/P chips of each long code of the plurality of long codes.

8. (currently amended): ~~The improvement as set forth in method of claim 7, with the step of acquiring including wherein step (c) further includes acquiring, from the communications channel, using the phase acquisition means,~~ the plurality of long codes from the plurality of phase angles, respectively, of the carrier signal by searching, in parallel, N/P chips of each of the plurality of long codes.

9. (currently amended): ~~The improvement as set forth in method of claim 7, with the step of transmitting including wherein step (b) further includes transmitting the plurality of long codes at the plurality of phase angles, respectively, on the carrier signal, with each phase angle in the plurality of phase angles representing an M-ary phase scheme.~~

10. (currently amended): ~~The improvement as set forth in method of claim 9, with the step of acquiring including wherein step (c) further includes~~

acquiring, from the communications channel, ~~using the phase acquisition means,~~ the plurality of long codes, respectively, of the carrier signal by searching, in parallel, N/P chips of each long code of the plurality of long codes ~~the first long code and the second long code.~~

11. (currently amended): ~~The improvement as set forth in method of claim 7, with the step of generating including wherein step (a) further includes~~ generating the plurality of long codes from a multiplicity of short codes, with each short code different from other short codes in the multiplicity of short codes, and each short code in the multiplicity of short codes having a length less than N chips, with a first short code thereby embedded in a first long code and a second short code embedded in a second long code.

12. (currently amended): ~~The improvement as set forth in method of claim 11, with the step of acquiring including wherein step (c) further includes~~ acquiring, from the communications channel, ~~using the phase acquisition means,~~ the first short code embedded in the first long code and the second short code embedded in the second long code, from the first phase angle and the second phase angle, respectively, by searching, in parallel, N/P chips of the first short code and the second short code.

13. (currently amended): A code division multiple access (CDMA) system ~~An improvement for a system for rapidly acquiring a spreading code, used in a code division multiple access (CDMA) system,~~ the improvement system comprising:

generator means for generating a first long code and a second long code, with each long code having a length  $N$  chips, and with the first long code being different from the second long code;

transmitter means for transmitting, over a communications channel using radio waves, the first long code and the second long code, at a first phase angle and at a second phase angle, respectively, on a carrier signal, with the first phase angle being different from the second phase angle; and

acquisition means for acquiring, from the communications channel, using two phase-acquisition circuits in parallel, the first long code and the second long code from the first phase angle and the second phase angle, respectively, by searching, in parallel,  $N/2$  chips of the first long code and the second long code.

14. (currently amended): The ~~improvement as set forth in~~ system of claim 13, whereby said transmitter means transmits the first long code and the second long code, at an in-phase (I) angle and at a quadrature-phase (Q) angle, respectively, on the carrier signal, with the I angle ninety degrees out of phase with the Q angle.

15. (currently amended): The ~~improvement as set forth in~~ system of claim 14, with said acquisition means acquiring from the communications channel, using an I acquisition circuit and a Q acquisition circuit in parallel, the first long code and the second long code from the I angle and the Q angle, respectively, of the carrier signal by searching, in parallel,  $N/2$  chips of the first long code and the second long code.

16. (currently amended): The ~~improvement as set forth in~~ system of claim 13, whereby said transmitter means transmits the first long code and the second long code, at an in-phase (I) angle and at a quadrature-phase (Q) angle, respectively, on the carrier signal, with the I angle ninety degrees out of phase with the Q angle.

17. (currently amended): The ~~improvement as set forth in~~ system of claim 16, with said acquisition means acquiring from the communications channel, using an I acquisition circuit and a Q acquisition circuit in parallel, the first long code and the second long code from the I angle and the Q angle, respectively, of the carrier signal by searching, in parallel, N/2 chips of the first long code and the second long code.

18. (currently amended): The ~~improvement as set forth in~~ system of claim 13, with said generator means generating the first long code and the second long code from a multiplicity of short codes, with each short code different from other short code in the multiplicity of short codes, and each short code in the multiplicity of short codes having a length less than N chips, with a first short code thereby embedded in the first long code, and a second short code embedded in the second long code.

19. (currently amended): The ~~improvement as set forth in~~ system of claim 18, with said acquisition means acquiring from the communications channel, using the two phase-acquisition circuits in parallel, the first short code embedded in the first long code and the second short code embedded in the second long code, from the

first phase angle and the second phase angle, respectively, by searching, in parallel,  $N/2$  chips of the first short code and the second short code.

20. (currently amended): A code division multiple access (CDMA) system  
~~An improvement for a method~~ for rapidly acquiring a spreading code, ~~used in a code division multiple access (CDMA) system,~~ the ~~improvement~~ system comprising the steps of:

generator means for generating a plurality of  $P$  long codes, where  $P$  is the number of long codes in the plurality of long codes, with each long code having a length  $N$  chips, and with each long code being different from other long codes in the plurality of long codes;

transmitter means for transmitting, over a communications channel using radio waves, the plurality of long codes at a plurality of phase angles, respectively, on a carrier signal, with each phase angle in the plurality of phase angles different from other phase angles in the plurality of phase angles; and

acquisition means for acquiring, from the communications channel, ~~using phase acquisition means,~~ the plurality of long codes, respectively, by searching, in parallel,  $N/P$  chips of each long code of the plurality of long codes.

21. (currently amended): ~~The improvement as set forth in~~ system of claim 20, with said acquisition means acquiring from the communications channel, ~~using the phase acquisition means,~~ the plurality of long codes from the plurality of phase angles, respectively, of the carrier signal by searching, in parallel,  $N/P$  chips of each of the plurality of long codes.

22. (currently amended): ~~The improvement as set forth in~~ system of claim 20, with said transmitter means transmitting the plurality of long codes at the plurality of phase angles, respectively, on the carrier signal, with each phase angle in the plurality of phase angles representing an M-ary phase scheme.

23. (currently amended): ~~The improvement as set forth in~~ system of claim 22, with said acquisition means further including means for acquiring from the communications channel, ~~using the phase acquisition means,~~ the plurality of long codes, respectively, of the carrier signal by searching, in parallel, N/P chips of each long code of the plurality of long codes ~~the first long code and the second long code.~~

24. (currently amended): ~~The improvement as set forth in~~ system of claim 20, with said generator means generating the plurality of long codes from a multiplicity of short codes, respectively, with each short code different from other short codes in the multiplicity of short codes, and each short code in the multiplicity of short codes having a length less than N chips, with a first short code thereby embedded in a first long code and a second short code embedded in a second long code.

25. (currently amended): ~~The improvement as set forth in~~ system of claim 24, with said acquisition means acquiring from the communications channel, ~~using the phase acquisition means,~~ the first short code embedded in the first long code and the second short code embedded in the second long code, from the first phase angle and the second phase angle, respectively, by searching, in parallel, N/P chips of the first short code and the second short code.



26. (currently amended): A code division multiple access (CDMA) system  
~~An improvement for a system for rapidly acquiring a spreading code, used in a code~~  
~~division multiple access (CDMA) system, the improvement~~ system comprising:

a code generator for generating a first long code and a second long code, with each long code having a length N chips, with the first long code being different from the second long code;

a transmitter, coupled to said code generator, for transmitting, over a communications channel using radio waves, the first long code and the second long code, at a first phase angle and at a second phase angle, respectively, on a carrier signal, with the first phase angle different from the second phase angle; and

an acquisition circuit, coupled to the communications channel, for acquiring, from the communications channel, using two phase-acquisition circuits in parallel, the first long code and the second long code from the first phase angle and the second phase angle, respectively, by searching, in parallel, N/2 chips of the first long code and the second long code.

27. (currently amended): ~~The improvement as set forth in~~ system of claim 26, with said transmitter further including means for transmitting the first long code and the second long code, at an in-phase (I) angle and at a quadrature-phase (Q) angle, respectively, on the carrier signal, with the I angle ninety degrees out of phase with the Q angle.

28. (currently amended): ~~The improvement as set forth in~~ system of claim 27, with said acquisition circuit acquiring from the communications channel using an I acquisition circuit and a Q acquisition circuit in parallel, the first long code and the second long code from the I angle and the Q angle, respectively, of the carrier

signal by searching, in parallel,  $N/2$  chips of the first long code and the second long code.

29. (currently amended): The ~~improvement as set forth in~~ system of claim 26, with said code generator generating the first long code and the second long code, from a multiplicity of short codes, with each short code different from other short codes in the multiplicity of short codes, and each short code in the multiplicity of short codes having a length less than  $N$  chips, with a first short code thereby embedded in the first long code, and a second short code embedded in the second long code.

30. (currently amended): The ~~improvement as set forth in~~ system of claim 29, with said acquisition circuit acquiring from the communications channel using the phase-acquisition circuit, the first short code embedded in the first long code, and the second short code embedded in the second long code, from the first phase angle and the second phase angle, respectively, by searching, in parallel,  $N/2$  chips of the first short code and the second short code.